Working Group 1 Report

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Talks: Longitudinal Dynamics

- Two talks on longitudinal dynamics in non-scaling FFAGs
  - Focused on what phase space looked like
  - Parametric dependence of system
  - Longitudinal phase space transmission
  - Choosing initial phases of RF cavities
    - ⋆ Improves phase space linearity
    - ⋆ Don’t really get more turns
  - Tracking results from Dejan, Shane

Talks: Proton Driver

- Bill Weng presented a work plan for Proton Driver work
- Alessandro Ruggiero presented work on an updated version of his FFAG scheme with only a single ring taking you to 2 GeV.
  - Shinji Machida talked a bit on a the details of a similar lattice; had spiral angle
  - Introduced a field index $n = 10$
  - Fields kept low to avoid stripping H^-
  - Keep orbits separated, avoiding collisions
  - More work to be done on this design
  - Difficulties running (pseudo-)CW due to longitudinal dynamics?

Talks: Proton Driver (cont.)

- Weiren Chou presented ideas for an 8 GeV FFAG proton driver
  - High rep rate
  - Low beam intensity, lack of eddy currents, DC power supplies are advantages of FFAGs over synchrotron
  - Calling for large factor of acceleration: 9 or so!
  - Increase rep rate from existing proton driver design

Misc. Progress Reports

- We are trying to understand whether in triplets, DFD or FDF is a better scheme. Dejan has a good argument for FDF, but others seem to finding the two to be equally good, at least from the point of view of time-of-flight.
- Discussion of non-scaling baseline designs
  - Dejan has a design for the high eneryg ring with a lower time-of-flight variation. Need to ascertain why it is better than the one I presented.
    - His drifts between magnets are certainly lower
    - Look at Dejan's lattice with my code, see where it might not be meeting specs
    - Try doing my optimization with higher pole tip fields
  - Reducing RF drift length on low energy design gives some improvement, but still bad.
  - Dejan is also working on improving low energy design.

Plans for Today

- Morning talk on longitudinal dynamics in scaling FFAGs (Aiba)
- Maybe a morning talk on FDF/DFD (Yoshimoto)
- Afternoon talk on an FFAG proton driver lattice (Machida)
- Hopefully some work on one of our goals
  - Design of Scaling/Non-scaling FFAG to US/Japan specs
  - Design of electron model